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PATENT

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Joseph Phillip Bigus et al.	Art Unit:	2762
Serial No.:	09/100,595	Examiner:	Wilbert L. Starks, Jr.
Filed:	June 19, 1998	Atty. Docket No.:	IBM/04B
For:	OPTIMIZING THE PERFORMANCE OF COMPUTER TASKS USING INTELLIGENT AGENT WITH MULTIPLE PROGRAM MODULES HAVING VARIED DEGREES OF DOMAIN KNOWLEDGE		

Cincinnati, Ohio 45202 July 6, 2000

Assistant Commissioner for Patents
ATTENTION: Board of Patent Appeals and Interferences
Washington, D.C. 20231

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TRANSMITTAL OF APPEAL BRIEF (PATENT APPLICATION-37CFR 191)

1. Transmitted herewith in triplicate is the APPEAL BRIEF in this application with respect to the Notice of Appeal filed on May 4, 2000 (received by Patent Office on May 8, 2000).

2. **STATUS OF APPLICANT**

This application is on behalf of

XX **other than a small entity**

___ small entity

Verified Statement:

___ attached

___ already filed

3. **FEE FOR FILING APPEAL BRIEF**

Pursuant to 37 CFR 1.17(f) the fee for filing the Appeal Brief is:

___	Small entity	$150.00
XX	**Other than a small entity**	**$300.00**

4. **EXTENSION OF TERM**

Applicant petitions for an extension of time under 37 C.F.R. 1.136(a) for the total number of months checked below:

Months		Fee for other than small entity	Fee for small entity
_____	one month	$ 110.00	$ 55.00
_____	two months	..... 380.00	..... 190.00
_____	three months	..... 870.00	..... 435.00
_____	four months	..... 1,360.00	..... 680.00
_____	five months	..... 1,850.00	..... 925.00

Fee: $ _____

If an additional extension of time is required, please consider this a petition therefor.

5. **TOTAL FEE DUE**

The total fee due is:

Appeal brief fee $300.00
Extension fee _____

6. **FEE PAYMENT**

XX Attached is a check in the sum of $300.00
____ Charge fee to Deposit Account No. 23-3000.

7. **FEE DEFICIENCY**

XX Charge any additional extension fee required or credit any overpayment to Deposit Account No. 23-3000.

WOOD, HERRON & EVANS, L.L.P.

By _____
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CERTIFICATE OF MAILING 37 CFR 1.8

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Assistant Commissioner for Patents, Attention: Board of Patent Appeals and Interferences, Washington, D.C. 20231 on July 6, 2000.

_____
Scott A. Stinebruner Reg. No. 38,323

Attorney Docket No. IBM/04B

PATENT

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS

AND INTERFERENCES

Ex parte *Joseph Phillip Bigus,*
Brian John Cragun,
and Helen Roxlo Delp

Appeal No. _____

Application No. 09/100,595

APPEAL BRIEF

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BOARD OF PATENT APPEALS
AND INTERFERENCES

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Joseph Phillip Bigus et al.	Art Unit:	2762
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Assistant Commissioner for Patents
Washington, DC 20231

APPEAL BRIEF

I. REAL PARTY IN INTEREST

This application is assigned to International Business Machines Corporation, of Armonk, New York.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

III. STATUS OF CLAIMS

Claims 30-32, 36-45, 47-60, 62-74 and 76-80 are pending in the Application, all of which stand rejected, and all of which are now on appeal. Claims 1-29 and 33-35 were canceled by way of preliminary amendment filed concurrently with the Application. Claims 46, 61 and 75 were canceled, and claims 30, 47-49, 62-64 and 76-77 were amended, in the Amendment and Response filed July 1, 1999.

IV. STATUS OF AMENDMENTS

There have been no amendments filed subsequent to final rejection.

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V. SUMMARY OF INVENTION

The invention is generally directed to a method, program product and apparatus that optimize the performance of an intelligent agent computer program (commonly referred to as an "intelligent agent") in performing a computer task by configuring the intelligent agent to execute one or more of a plurality of available program modules (Application, page 7, lines 2-8). An intelligent agent is a type of computer program that performs operations on behalf of a client, typically using some degree of autonomy delegated to the intelligent agent by the client (Application, page 11, lines 5-11). Often intelligent agents are capable of being "dispatched", or sent to remote computer systems to perform actions on behalf of their clients (Application, page 11, lines 11-26).

One specific, but not exclusive, application of the invention is in conducting negotiations in electronic commerce applications (Application, page 12, lines 22-27). Typically, such negotiations would be performed with another party such as another agent, computer program, or person. In such negotiations, typically one party acts as a "seller" and one party acts as a "buyer." As with typical human-based negotiations, one party typically makes an offer to buy a good or service, and another party responds by either accepting the offer and completing the transaction, rejecting the offer and terminating the transaction, or counter-offering with an alternate proposal, leaving the original offering party with the ability to respond in any of the aforementioned manners.

Applicants have found that in electronic commerce and other applications, an inherent security risk arises whenever an intelligent agent is dispatched to a remote computer system, since an agent's client often has little control over the surrounding environment within which an agent executes (Application, page 4, line 18 to page 5, line 18). For the situation where an agent is conducting a negotiation, for example, it is extremely important from a negotiation standpoint to hide an agent's internal strategy from an opposing party. Otherwise, if another party is able to determine that, for example, a seller agent that is offering $30 per widget has been authorized to drop the price to as low as $20 per widget, the other party would be able to extend negotiations until the selling agent drops the price to the minimum price.

One mechanism for reducing security risks is to grant an agent relatively little autonomy. For example, a client could require that an agent report back all offers and counter-offers, and require the client to instruct the agent as to whether to accept, reject or counter-offer in response. However, one primary goal driving the adoption of intelligent agents is the desire to minimize such interactions through the granting of greater autonomy. In a world free of security risks, a client would rather grant an agent a high level of autonomy, and instruct an agent to "sell the widgets at the best price possible," and not have to further interact with the agent until the agent returns with a completed deal.

In the real world, however, different risks are posed in different environments, and Applicants have found that conventional intelligent agent designs are often incapable of addressing all of the potential environmental variables to which an agent may be exposed. Applicants have therefore attempted to address these concerns by adopting in one aspect of the invention a modular approach to intelligent agents in which different combinations of program modules, each having a varying degree of autonomy, yet all configured to handle the same basic computer task (e.g., conducting negotiations), are selected based on an objective criteria. An intelligent agent is then configured to execute the selected program module(s) to handle the computer task (Application, page 7, lines 2-19).

The objective criteria used to select program modules may be any number of criteria, e.g., security risk presented by a remote computer system, among others, as discussed at page 14, line 21 to page 15, line 3 of the Application. Moreover, in other environments, the intelligent agent and the program modules used therein may be configured to handle computer tasks other than conducting electronic commerce negotiations, e.g., as discussed at page 13, line 26 to page 14, line 12 of the Application.

Furthermore, the "autonomy" granted to different program modules is representative of just potential one type of "domain knowledge" imparted to such program modules. In other

environments, the program modules may vary from one another based on other types of domain knowledge, e.g., as discussed at page 12, line 9 to page 13, line 25 of the Application[1].

By adopting a modular approach, an intelligent agent is capable of being specifically tailored for optimal performance in different situations, thus presenting a client with a more flexible and powerful agent that has the potential to perform more effectively regardless of the environment within which the agent operates.

The aforementioned modular approach may be utilized to tailor intelligent agents for different environments in a number of manners consistent with the invention. For example, only one of a plurality of available program modules may be selected for execution, e.g., if the various program modules represent "alternate" program modules (Application, page 17, lines 14-21). In the alternative, program modules may have additive or non-overlapping functionality so that a subset of available program modules may be selected for execution in a particular agent (Application, page 17, lines 22-28).

Furthermore, an intelligent agent may be provided with both selected and non-selected program modules, such that configuration of the agent to execute a selected program module or modules may be implemented by controlling internal parameters of the agent (Application, page 17, line 29 to page 18, line 3). Otherwise, an intelligent agent may be initially constructed after selection of one or more program modules, such that only selected program modules are provided within the agent (Application, page 18, lines 3-7).

Moreover, the selection of program modules for use in an intelligent agent may based on static rules. In the alternative, however, such selection may be performed adaptively using a reinforcement learning algorithm that attempts to improve the selection of program modules based upon agents' past performance (Application, page 16, lines 18-26).

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[1] It should be noted that the various examples and variations described herein are provided to facilitate a better understanding of the breadth of the inventive concept. However, as it is the claims that specifically define the legal scope of a patent, these explanations should not be considered as limiting the scope of the claims on appeal.

VI. ISSUES

I. Whether claims 49-60, 62-74 and 76-80 were improperly rejection under 35 U.S.C. §101 as being directed to non-statutory subject matter.

II. Whether claims 30-32, 36-45, 47-60, 62-74 and 76-80 were improperly rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Pat.No. 5,875,437 to *Atkins*.

VII. GROUPING OF CLAIMS

For the purposes of appeal, and for the purposes of the art-based rejections, the following groupings of claims are considered to be separately patentable, with the individual claims within each claim grouping standing or falling together:

Group I: claims 30-32, 36, 39-41, 45, 47, 49, 52-53, 55, 59-60, 62, 64-65, 68-70, 74, and 76

Group II: claims 48, 63, and 77-80

Group III: claims 37-38, 56-58, and 66-67

Group IV: claims 42, 50, and 71

Group V: claims 43, 51, and 72

Group VI: claims 44, 54, and 73

Applicants have made no groupings with respect to the 35 U.S.C. §101 rejections, and each claim is considered to stand or fall separately from the other claims.

VIII. ARGUMENT

Applicants respectfully submit that the Examiner's rejections of claims 30-32, 36-45, 47-60, 62-74 and 76-80 are not supported on the record, and the rejections should be reversed. The reasons for reversing the Examiner's rejections are presented in greater detail below.

A. Claims 49-60, 62-74 and 76-80 were improperly rejection under 35 U.S.C. §101 as being directed to non-statutory subject matter.

The Examiner's 35 U.S.C. §101 rejection of the method and apparatus claims (claims 49-60, 62-74 and 76-80) should be reversed, as the Examiner's position is unsupported by either current case law or the United States Patent and Trademark Office's own Examination Guidelines for Computer-Related Inventions (hereinafter the "USPTO Guidelines"). Section 101 of Title 35 of the United States Code requires that an invention be applied to produce a "useful, concrete and tangible result." State Street Bank & Trust v. Signature Financial Group, 47 USPQ2d 1596, 1602 (Fed. Cir. 1998). *See also* AT&T Corp. v. Excel Communications, Inc., 50 USPQ2d 1447 (Fed. Cir. 1999). Moreover, the USPTO Guidelines set forth a series of steps that an Examiner must follow to analyze whether certain claims comply with this requirement. USPTO Guidelines, Section IV.

At the outset, it should be noted that the Examiner has chosen to not utilize the USPTO Guidelines in making the rejection. Nor has the Examiner chosen to carefully analyze each claim individually. Instead, the Examiner has apparently taken the position that Constitutional requirements have not been fulfilled as to any of the rejected claims in that Applicant "discloses no 'certain substances' in the sense that Applicants' claims disclose no *specific* computer-readable medium, no manipulation of *specific* data representing physical objects or activities (pre-computer activity), nor do they disclose any *specific* independent physical acts being performed by the invention (post-computer activity)." February 4, 2000 Office Action, page 3 (*emphasis in original*).

Each of the rejected independent claims 49, 64 and 78 recites in part the selection of at least one program module from a plurality of program modules, wherein the plurality of program modules are configured to handle a computer task, and the configuration of an intelligent agent to execute the selected program module(s) to handle the computer task. As for claims 49 and 64, the program modules vary in autonomy, and the common computer task includes conducting negotiations in an electronic commerce application. As for claim 78, the selection of a program module is performed based upon a "risk" that is determined for a remote computer system within which the computer task is to be performed.

The selection of a program module recited in each of the aforementioned claims is not merely a manipulation of abstract ideas or mathematical formulas, but rather a useful, concrete, and tangible result is obtained by virtue of the optimization of the operation of an intelligent agent in performing the recited computer task. Moreover, as to claims 49 and 64, these claims specifically recite the practical application of the claimed method and apparatus in "conducting negotiations in an electronic commerce application." Further, as to claim 78, this claim specifically recites the determination of risk in a remote computer system, and the subsequent optimization of an intelligent agent based upon the determined risk. Applicants respectfully submit that these specific recitations of practical utility are all that is necessary to define a statutory invention consistent with State Street Bank and AT&T.

Moreover, under the analysis set forth by the USPTO Guidelines, Applicants' claims are statutory. First, each claim is classified in a statutory category -- a process for each of claims 49 and 78, and a machine for claim 64.

Second, each claim *in the least* recites a statutory process[2]. Specifically, each claim either recites the manipulation of data representing physical objects or activities to achieve a practical application, or each is limited to a practical application in the technological arts, as is required by Sections IV.B.2(b)(i) and (ii) of the USPTO Guidelines. As to claim 49, this claim is limited to "configuring an intelligent agent" to perform a common computer task that includes "conducting negotiations in an electronic commerce application." As to claim 64, this claim recites an intelligent agent in which at least one of a plurality of program modules is "selected" to handle a computer task that includes "conducting negotiations in an electronic commerce application." As to claim 78, this claim recites determining the risk for a remote computer system, and "configuring an intelligent agent" to perform a common computer task based upon such determined risk. None of the claims therefore are broad enough to encompass the mere manipulation of abstract ideas.

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[2] Without conceding that apparatus claim 64 is not directed to a specific machine or manufacture, Applicants will analyze the statutory nature of claim 64 along with claims 49 and 78, based upon the statutory nature of the "underlying process" recited in the claim. USPTO Guidelines, Section IV.B.2(a).

It is also interesting to note that method claims 49 and 78 are in many ways analogous to the Neural Network example from the Training Materials Directed to Business, Artificial Intelligence, and Mathematical Processing Applications (hereinafter, the "Training Materials," the relevant portion of which is attached as Appendix B), provided as a supplement to the USPTO Guidelines[3]. In the Neural Network example, apparently the distinguishing recitation in claim 1 verses claims 2 and 3 was the recitation of "using . . . sets of training target points to train the neural network," which the Training Materials allege to be a functional step which covers "reconfiguration of the neural network to produce a practical effect." Training Materials, note 5, page B-4 of Appendix B[4]. Likewise, claims 49 and 78 each recite "configuring an intelligent agent to execute the at least one selected program module to handle the computer task," which limits the respective claimed inventions to the practical application of configuring an intelligent agent to produce a practical effect[5].

The Examiner's analysis would appear to require Applicants' claims to recite the transformation of "certain substances." however, Applicants are unsure as to what exactly would constitute such transformation, or why Applicants' claims do not meet this supposed requirement. The Examiner's brief yet all-inclusive basis for rejection of all of the claims is silent as to what specifically is deficient in Applicants' claims.

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[3] Applicants note that neither the USPTO Guidelines nor the Training Materials are binding authority with respect to 35 U.S.C. §101; however, such materials are persuasive authority as to the USPTO's position with regard to analysis of claims for statutory subject matter, and the analysis of Applicants' claims on the basis of these authorities is therefore submitted as further support for Applicants' position.

[4] This language is to be distinguished from "using . . . sets of training target points to develop a set of training sets for training the neural network" (claim 2) and "using . . . sets of training target points to determine the state of the neural network" (claim 3), which are alleged to not be directed to statutory subject matter.

[5] As for claim 64, the Neural Network example is not specifically on-point. Nonetheless, given that the recited intelligent agent is configured to include at least one of a plurality of program modules configured to handle a common computer task that includes conducting negotiations in an electronic commerce application, Applicants submit that claim 64 is directed to statutory subject matter.

Nonetheless, as discussed above with relation to current case law and the USPTO Guidelines, independent claims 49, 64 and 78 comply with 35 U.S.C. §101[6]. Accordingly, Applicants respectfully submit that these claims are directed to statutory subject matter, and reversal of the Examiner's rejection is therefore respectfully requested.

B. Claims 30-32, 36-45, 47-60, 62-74 and 76-80 were improperly rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Pat.No. 5,875,437 to *Atkins*.

The Examiner argues that *Atkins* anticipates all of claims 30-32, 36-45, 47-60, 62-74 and 76-80. Anticipation of a claim under 35 U.S.C. §102, however, requires that "each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." Verdegaal Bros., Inc. v. Union Oil Co., 2 USPQ2d 1051, 1053 (Fed. Cir. 1987), *quoted in* In re Robertson, 49 USPQ2d 1949, 1950 (Fed. Cir. 1999). Absent express description, anticipation under inherency requires extrinsic evidence that makes it clear that "the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." Continental Can Co. v. Monsanto Co., 20 USPQ2d 1746, 1749 (Fed. Cir. 1991), *quoted in* In re Robertson at 1951. "Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." Continental Can at 1749, *quoted in* In re Robertson at 1951.

Applicants respectfully submit that *Atkins* falls far short of anticipating claims 30-32, 36-45, 47-60, 62-74 and 76-80, and as such, the rejections thereof should be reversed. Specific discussions of the novelty of each of the aforementioned groups of claims are presented hereinafter.

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[6] In the interests of judicial economy, the statutory nature of the rejected dependent claims (several of which further limit their respective inventions to practical applications in the technological arts) has not been addressed herein. However, it should be noted that the Examiner has not separately addressed the subject matter of each of these claims, and thus has not satisfied the burden required to support the rejections of such claims.

1. The Group I Claims (Claims 30-32, 36, 39-41, 45, 47, 49, 52-53, 55, 59-60, 62, 64-65, 68-70, 74, and 76) were improperly rejected under 35 U.S.C. §102(e) as being anticipated by *Atkins*.

Claim 49, which is representative of the Group I claims, recites method of handling a computer task using an intelligent agent. The method includes selecting at least one selected program module from a plurality of program modules having varied degrees of autonomy based upon an objective criteria. The plurality of program modules are each configured to handle a common computer task that includes conducting negotiations in an electronic commerce application. The method further includes configuring an intelligent agent to execute the at least one selected program module to handle the computer task.

Atkins, on the other hand, is merely directed to a financial management system that recites in one brief passage (at Col. 34, lines 19-21) the use of interactive agents capable of "negotiating, cooperating and transacting various forms of exchange, investment and borrowing." However, *Atkins* does not address any of the specific language recited in claim 49.

Specifically, *Atkins* is silent as to "selecting at least one selected program module from a plurality of program modules having varied degrees of autonomy" and "configuring an intelligent agent to execute the at least one selected program module to handle [a] computer task" as is required by claim 49. Moreover, *Atkins* is silent as to providing a plurality of program modules that are each specifically "configured to handle a common computer task that includes conducting negotiations in an electronic commerce application," as is also required by claim 49.

The Examiner cites passages in *Atkins* purporting to anticipate claim 49, although the Examiner did not attempt to apply the disclosure of *Atkins* directly to the claim language. These passages, along with additional sections necessary to provide context for the cited passages, are reproduced below for the Board's convenience:

> "The system of the present invention utilizes the computation and communications capability of a digital system including a variety of personal digital assistants to send and receive data from a myriad of sources. The system then consolidates that information for the benefit of the consumer regardless of the number of institutions with which the individual has account relationships.

> The digital system of the present invention can receive financial data, consolidate the financial information, analyze the information, recommend specific actions or transactions which optimize an individual's asset/liability allocation, capital budgeting, or portfolio selection, and negotiate with other parties (or other parties' personal digital assistants) to effect a transaction or series of transactions, and report the results to the individual." *(Atkins*, col. 9, lines 26-39)
>
> "Individual users of the HOME Account™ system can also receive personal financial planning and analysis assistance by means of an interactive expert computer system and direct consultation with financial planners. . . . Knowledge based systems also offer a convenient and cost effective means of providing integrated planning and analysis services. Such systems are consistent with and utilize techniques derived from modern portfolio theory, capital asset pricing models, and operations research methodologies to help the customer realize her financial objectives. In cases where multiple problem solving techniques are required, an expert system such as a blackboard which incorporates cooperative and competitive expert agents can be used. In this way, each problem solving technique is applied to the appropriate aspect of the problem, and a form of machine learning is utilized. Both stochastic and fuzzy techniques for dynamic multi-objective decision making under uncertainty provide asset/liability and portfolio optimization tools that explicitly integrate considerations of risk and uncertainty in the planning process. The optimization techniques may be coupled with stochastic or other forms of scenario generation models and simulation techniques so that consumers can quickly and easily see the results of alternative asset and liability allocations and sources and uses of funds." (*Atkins*, col. 29, lines 12-46)

As to the first passage, the Examiner is apparently arguing that the disclosure of negotiating with another party's personal digital assistant somehow corresponds to an intelligent agent that conducts electronic commerce negotiations. However, the disclosed "personal digital assistant" in *Atkins* refers to a handheld computer -- not an intelligent agent computer program (see *Atkins*, col. 30, lines 45-53 and PDA 34 shown in hardware system Fig. 2). The passage

otherwise is silent as to conducting negotiations using an intelligent agent or agent autonomy, as alleged by the Examiner.

As to the second passage, this passage does not even relate to conducting negotiations, electronic commerce or agent autonomy, as is apparently alleged by the Examiner. Rather, the cited passage refers to expert-based financial planning that in some embodiments is capable of using competitive or cooperative agents to plan investment strategies, a field that is completely irrelevant to agent-based negotiation.

It should be noted that Applicants are not attempting to patent all applications of intelligent agents for conducting electronic commerce negotiations. Indeed, *Atkins* discloses at col. 34, lines 19-21 the use of interactive agents for negotiating. From the above passages, however, it appears that the Examiner considers that Applicants are attempting to patent all applications of intelligent agents in conducting negotiations, as there is nothing in any of the passages that even arguably discloses any of the specifically-claimed features. It appears, in fact, from the citation of the above passages that the Examiner has attempted to distill an abstract concept, or "essence of the invention" from the Application without careful consideration of the claimed invention. Anticipation requires a clear disclosure of each and every limitation in a claim, and it is readily apparent that the Examiner has simply failed to carefully analyze the claims. As such, the rejection is deficient on its face.

Were the Examiner to carefully consider the language of claim 49, the Examiner would note that none of the cited passages in *Atkins*, nor any of the other disclosure in the reference, discloses the concept of providing multiple program modules having varying degrees of autonomy, yet all capable of handling a common computer task that includes conducting negotiations in an electronic commerce application. Nor does *Atkins* disclose selecting one or more of such program modules based on an objective criteria, or configuring an intelligent agent to execute selected program modules to handle the computer task.

As *Atkins* fails to disclose any of these claimed features, Atkins does not anticipate claim 49. Moreover, as independent claims 30 and 64 likewise recite the aforementioned limitations of claim 49, Applicants respectfully submit that *Atkins* also fails to anticipate any of these

additional claims. Reversal of the Examiner's rejections of claims 30, 49 and 64, as well as the claims depending therefrom, is therefore respectfully requested[7].

2. The Group II Claims (Claims 48, 63, and 77-80) were improperly rejected under 35 U.S.C. §102(e) as being anticipated by *Atkins*.

Claim 63, which is representative of the Group II claims, additionally recites that the objective criteria used to select one or more selected program modules for an agent "includes a risk that a dispatched agent is subjected to in negotiations." In the context of the invention, the term "risk" is associated with a security risk, e.g., that an agent's negotiation strategy could be detected or altered by another party to a transaction, such that the other party could gain a competitive advantage in the transaction (*see, e.g.,* the text starting at page 4, line 18 of the Application).

In rejecting claim 63, the Examiner cites col. 29, lines 34-46 and col. 34, lines 19-27 of *Atkins*. As to the former passage in *Atkins* (which as discussed above is not even related to agents), the term "risk" is used in the context of financial risk, e.g., as in stocks are riskier investments than bonds. As to the latter passage, there is no discussion whatsoever of the concept of risk to a dispatched agent. Applicants can find no additional disclosure in *Atkins* that is relevant to the claimed concept of risk, and given that *Atkins* further fails to disclose the concept of selecting among multiple program modules for use in an agent, much less doing so based upon an objective criteria that includes risk, Applicants respectfully submit that *Atkins* does not anticipate claim 63.

The Examiner also cites Mitchell, An Introduction to Genetic Algorithms (hereinafter "*Mitchell*") at page 105 for apparently *inherently* disclosing the concept of risk that a dispatched agent is subjected to in negotiations. As an initial matter, it is Applicants' understanding that

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[7] While the obviousness of the pending claims is not specifically at issue in this appeal, Applicants note that neither *Atkins*, nor any of the other cited references alone or in combination, discloses or suggests the specific features recited in independent claims 30, 49 and 64. Accordingly, Applicants also respectfully submit that each of these claims is also non-obvious over the prior art of record.

inherency is a relatively narrow concept, requiring that a secondary reference make it clear that the inherent feature is necessarily present in a primary reference.

From the text of the Office Action, however, it appears the Examiner is using more of an *obviousness-type* analysis in making the rejection, despite maintaining the rejections on the basis of 35 U.S.C. §102(e). The Board will note that the Examiner has also used similar analysis in the rejections of claims 37, 39-45, 48, 50-57, 59-60, 63, 65-66, 68-74, 77 and 79-80, citing in some instances two supporting references purportedly showing inherent features in *Atkins*. Applicants respectfully submit that the Examiner's liberal use of inherency in the rejections is improper, and Applicants respectfully request that the Board instruct the Examiner in the proper usage of inherency in anticipation-type analysis.

Under either anticipation or obviousness analysis, however, *Mitchell* fails to render claim 63 unpatentable. The cited passage of *Mitchell* discusses an agent "ecosystem" where agents interact with one another through combat, trading or mating to evolve a population of agents. Agents decide how to interact based upon internal rules and outward physical characteristics of other agents.

If the Examiner is relying on inherency, *Mitchell* does not disclose the concept of "risk that a dispatched agent is subjected to in negotiations", as no electronic commerce negotiations are disclosed in the reference. Moreover, *Mitchell* is silent as to the concept of selecting program modules for an agent, as well as the concept of doing so based upon risk.

Even if the Examiner is relying on obviousness, *Mitchell* likewise fails to render claim 63 unpatentable, as neither *Mitchell* nor *Atkins*, alone or combination, suggests the concept of selecting among multiple program modules for an agent based upon the risk that an agent is subjected to in negotiations.

As such, Applicants respectfully submit that the Examiner's rejection of claim 63 cannot be maintained, whether under anticipation or obviousness. Moreover, claims 48 and 77 recite similar language, and are thus novel and non-obvious for the reasons discussed above with respect to claim 63. Reversal of the Examiner's rejections of claims 48, 63 and 77 is therefore respectfully requested.

Moreover, with respect to claim 78, this claim recites determining a risk for a remote computer system, and based upon such risk, selecting at least one selected program module from a plurality of program modules having varied degrees of domain knowledge, wherein the plurality of program modules are configured to handle a common computer task in the remote computer system. It is to be noted that this claim is not limited to a common computer task that includes conducting negotiations in an electronic commerce application, nor to program modules having varied degrees of autonomy. Nonetheless, neither *Atkins* nor *Mitchell* disclose or suggest the concept of selecting among multiple program modules for an intelligent agent based upon the risk for a remote computer system. As such, the Examiner's rejection of claim 78 cannot be maintained. Reversal of the rejection of claim 78, as well as that of claims 79 and 80 which depend therefrom, is therefore respectfully requested.

3. The Group III Claims (Claims 37-38, 56-58, and 66-67) were improperly rejected under 35 U.S.C. §102(e) as being anticipated by *Atkins*.

Claim 56, which is representative of the Group III claims, additionally recites the concept of "adaptively selecting the selected program module using a reinforcement learning algorithm." The Examiner alleges, however, that this concept is disclosed at col. 29, lines 22-23 of *Atkins*, which recites the usage of "genetic learning techniques" in performing financial planning and analysis. Also in this rejection, the Examiner cites *Mitchell*, pp. 85-109, for showing that genetic learning techniques may utilize evolutionary concepts.

As discussed above with respect to the Group I claims, however, the cited passage in *Atkins* relates to financial planning and analysis, and not to selecting among multiple program modules for an intelligent agent. *Atkins* is in fact silent regarding the concept of applying genetic learning techniques to intelligent agents or the configuration thereof. Moreover, given the Examiner's misreading of *Atkins*, the Examiner's inherency argument based upon *Mitchell* is irrelevant. The anticipation rejection of claim 56, as well as claims 57-58 which depend

therefrom, should therefore be reversed[8]. Moreover, as claims 37 and 66 incorporate similar subject matter, the rejections of these claims, as well as claims 38 and 67 which depend therefrom, should also be reversed.

4. The Group IV Claims (Claims 42, 50, and 71) were improperly rejected under 35 U.S.C. §102(e) as being anticipated by *Atkins*.

Claim 50, which is representative of the Group IV claims, additionally recites the concept of constructing the intelligent agent to include only the selected program module. The Examiner again relies on an inherency-type argument, arguing that the disclosure of "genetic learning techniques" in *Atkins* inherently discloses the additional limitations of claim 50, based upon cited passages at pages 91 and 96 of *Mitchell*, as well as at page 77 of a third reference, Koza, Genetic Programming: On the Programming of Computers by Means of Natural Selection (hereinafter "*Koza*").

First, as to *Atkins*, as discussed above, the reference does not disclose the application of genetic learning techniques to intelligent agents. Second, as to *Mitchell* and *Koza*, neither of these references disclose the concept of constructing an agent from a selected program module among a plurality of program modules. Both references disclose evolutionary techniques whereby different programs are kept or discarded during successive generations, yet none discusses constructing an agent from a program module. *Koza* does disclose genetically recombining randomly-chosen parts of programs to create new programs, however, such random selection, even if arguably suggesting construction of an agent from a program module, teaches expressly away from Applicants' claimed selection of a program module based on an objective criteria.

As such, Applicants respectfully submit that the Examiner's rejection of claim 50 cannot be maintained. Reversal of the Examiner's rejection of claim 50, as well as of claims 42 and 71 which recite like subject matter, is therefore respectfully requested.

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[8] It should also be noted that the combined references also fail to suggest adaptively selecting from among multiple program modules for an intelligent agent, and as such, claim 56 is also non-obvious over the references.

5. The Group V Claims (Claims 43, 51, and 72) were improperly rejected under 35 U.S.C. §102(e) as being anticipated by *Atkins*.

Claim 51, which is representative of the Group V claims, additionally recites the concept of including each of the plurality of program modules in the intelligent agent, and configuring the intelligent agent to execute only the selected program module to handle the computer task. The Examiner again relies on an inherency argument, arguing that the disclosure of "genetic learning techniques" in *Atkins* inherently discloses the additional limitations of claim 51, based upon cited passages at pages 91 and 95-100 of *Mitchell* and page 77 of *Koza*.

As to *Atkins*, as discussed above, the reference does not disclose the application of genetic learning techniques to intelligent agents. As to *Mitchell* and *Koza*, neither of these references discloses the concept of providing multiple program modules in an agent and configuring the agent to handle the computer task by executing only a selected program module. As such, neither can be relied upon to support the Examiner's inherency argument.

Applicants therefore respectfully submit that the Examiner's rejection of claim 51 cannot be maintained. Reversal of the Examiner's rejection of claim 51, as well as of claims 43 and 72 which recite like subject matter, is therefore respectfully requested.

6. The Group VI Claims (Claims 44, 54, and 73) were improperly rejected under 35 U.S.C. §102(e) as being anticipated by *Atkins*.

Claim 54, which is representative of the Group VI claims, additionally recites the concept of each of the plurality of program modules being additive in nature, such that a subset of the plurality of program modules is selected to handle the computer task. The Examiner again apparently relies on an inherency argument, arguing that the disclosure of "genetic learning techniques" in *Atkins* inherently discloses the additional limitations of claim 54, based upon cited passages at page 91 of *Mitchell* and page 343 of *Koza*.

As to *Atkins*, as discussed above, the reference does not disclose the application of genetic learning techniques to intelligent agents. As to *Mitchell* and *Koza*, neither of these references discloses the concept of selecting a subset of a plurality of additive program modules

for use in a single agent. As such, neither can be relied upon to support the Examiner's inherency argument.

Moreover, with respect to *Koza*, the Examiner argues that the reference discloses a "bucket-brigade" strategy whereby multiple "ant" agents cooperate to maintain a pheromone trail of food in a simulated environment. It should be noted, however, that the "ant" agents are separate agents, and not program modules provided within the same agent. As such, Applicants fail to see how *Koza* can be read to inherently disclose claim 54.

Applicants therefore respectfully submit that the Examiner's rejection of claim 54 cannot be maintained. Reversal of the Examiner's rejection of claim 54, as well as those of claims 44 and 73 which recite like subject matter, is therefore respectfully requested.

IX. CONCLUSION

In conclusion, Applicants respectfully request that the Board reverse the Examiner's rejections of claims 30-32, 36-45, 47-60, 62-74 and 76-80, and that the Application be passed to issue. If there are any questions regarding the foregoing, please contact the undersigned at 513/241-2324. Moreover, if any other charges or credits are necessary to complete this communication, please apply them to Deposit Account 23-3000.

Respectfully submitted,

WOOD, HERRON & EVANS, L.L.P.

Date: 6 JULY 2000

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APPENDIX A: CLAIMS ON APPEAL (S/N 09/100,595)

1-29. Canceled.

30. (Once Amended) A program product comprising:

(a) a program configured to perform a computer task using an intelligent agent, the program comprising an intelligent agent including at least one of a plurality of program modules having varied degrees of autonomy, wherein the plurality of program modules are each configured to handle a common computer task that includes conducting negotiations in an electronic commerce application, and wherein, based upon an objective criteria, at least one selected program module from the plurality of program modules is selected to handle the computer task; and

(b) a signal bearing media bearing the program.

31. The program product of claim 30, wherein the signal bearing media is transmission type media.

32. The program product of claim 30, wherein the signal bearing media is recordable media.

33. Canceled.

34. Canceled.

35. Canceled.

36. The program product of claim 30, wherein the program further includes an evaluation module configured to select the selected program module based upon the objective criteria.

37. The program product of claim 36, wherein the program further includes a reinforcement learning module, coupled to the evaluation module and configured to adaptively select program modules based upon the performance of the plurality of program modules in handling the computer task.

38. The program product of claim 37, wherein the reinforcement learning module comprises an adaptive heuristic critic neural network.

39. The program product of claim 36, wherein the evaluation module is configured to retrieve information for a selected computer task, determine a selected value for the objective criteria for the selected computer task, and select as the selected program module one of the plurality of program modules which is matched with the selected value of the objective criteria.

40. The program product of claim 36, wherein the evaluation module is implemented in an agent manager.

41. The program product of claim 36, wherein the evaluation module is implemented in the intelligent agent.

42. The program product of claim 36, wherein the intelligent agent includes only the selected program module from the plurality of program modules, and wherein the evaluation module is configured to construct the intelligent agent using the selected program module.

43. The program product of claim 36, wherein the intelligent agent includes each of the plurality of program modules, and wherein the evaluation module is configured to execute only the selected program module to handle the computer task.

44. The program product of claim 36, wherein the plurality of program modules are additive program modules, and wherein the evaluation module is configured to select a subset of the plurality of program modules to handle the computer task.

45. The program product of claim 36, wherein the plurality of program modules are alternative program modules, and wherein the evaluation module is configured to select only one of the plurality of program modules to handle the computer task.

46. Canceled.

47. (Once Amended) The program product of claim 30, wherein the plurality of program modules includes a semi-autonomous program module, a fully-autonomous program module, and a fully-dependent program module.

48. (Once Amended) The program product of claim 30, wherein the objective criteria includes a risk that a dispatched agent is subjected to in negotiations.

49. (Once Amended) A method of handling a computer task using an intelligent agent, the method comprising the steps of:

(a) based upon an objective criteria, selecting at least one selected program module from a plurality of program modules having varied degrees of autonomy, wherein the plurality of program modules are each configured to handle a common computer task that includes conducting negotiations in an electronic commerce application; and

(b) configuring an intelligent agent to execute the at least one selected program module to handle the computer task.

50. The method of claim 49, wherein the intelligent agent includes only the selected program module from the plurality of program modules, and wherein the configuring step includes the step of constructing the intelligent agent using the selected program module.

51. The method of claim 49, wherein the intelligent agent includes each of the plurality of program modules, and wherein the configuring step includes the step of configuring the intelligent agent to execute only the selected program module to handle the computer task.

52. The method of claim 49, wherein the selecting step is performed by the intelligent agent.

53. The method of claim 49, wherein the selecting step is performed by an agent manager.

54. The method of claim 49, wherein the plurality of program modules are additive program modules, and wherein the selecting step includes the step of selecting a subset of the plurality of program modules to handle the computer task.

55. The method of claim 49, wherein the plurality of program modules are alternative program modules, and wherein the selecting step includes the step of selecting only one of the plurality of program modules to handle the computer task.

56. The method of claim 49, wherein the selecting step includes the step of adaptively selecting the selected program module using a reinforcement learning algorithm.

57. The method of claim 56, further comprising the steps of:

(a) obtaining performance information relating to the performance of the selected program module in handling the computer task; and

(b) supplying the performance information to the reinforcement learning algorithm.

58. The method of claim 56, wherein the reinforcement learning algorithm is implemented in an adaptive heuristic critic neural network.

59. The method of claim 49, wherein the selecting step includes the steps of:

(a) matching each of the plurality of program modules with a value of the objective criteria;

(b) determining a selected value of the objective criteria; and

(c) selecting as the selected program module a program module matching the selected value of the objective criteria.

60. The method of claim 59, wherein the selecting step further includes the step of retrieving information for a selected computer task, wherein the determining step determines the selected value of the objective criteria using the retrieved information.

61. Canceled.

62. (Once Amended) The method of claim 49, wherein the plurality of program modules includes a semi-autonomous program module, a fully-autonomous program module, and a fully-dependent program module.

63. (Once Amended) The method of claim 49, wherein the objective criteria includes a risk that a dispatched agent is subjected to in negotiations.

64. (Once Amended) An apparatus for handling a computer task, comprising:

a memory; and

an intelligent agent resident in the memory, the intelligent agent including at least one of a plurality of program modules having varied degrees of autonomy, wherein the plurality of program modules are each configured to handle a common computer task that includes conducting negotiations in an electronic commerce application, and wherein, based upon an objective criteria, at least one selected program module from the plurality of program modules is selected to handle the computer task.

65. The apparatus of claim 64, further comprising an evaluation module configured to select the selected program module based upon the objective criteria.

66. The apparatus of claim 65, further comprising a reinforcement learning module, coupled to the evaluation module and configured to adaptively select program modules based upon the performance of the plurality of program modules in handling the computer task.

67. The apparatus of claim 66, wherein the reinforcement learning module comprises an adaptive heuristic critic neural network.

68. The apparatus of claim 65, wherein the evaluation module is configured to retrieve information for a selected computer task, determine a selected value for the objective criteria for the selected computer task, and select as the selected program module one of the plurality of program modules which is matched with the selected value of the objective criteria.

69. The apparatus of claim 65, wherein the evaluation module is implemented in an agent manager.

70. The apparatus of claim 65, wherein the evaluation module is implemented in the intelligent agent.

71. The apparatus of claim 65, wherein the intelligent agent includes only the selected program module from the plurality of program modules, and wherein the evaluation module is configured to construct the intelligent agent using the selected program module.

72. The apparatus of claim 65, wherein the intelligent agent includes each of the plurality of program modules, and wherein the evaluation module is configured to execute only the selected program module to handle the computer task.

73. The apparatus of claim 65, wherein the plurality of program modules are additive program modules, and wherein the evaluation module is configured to select a subset of the plurality of program modules to handle the computer task.

74. The apparatus of claim 65, wherein the plurality of program modules are alternative program modules, and wherein the evaluation module is configured to select only one of the plurality of program modules to handle the computer task.

75. Canceled.

76. (Once Amended) The apparatus of claim 64, wherein the plurality of program modules includes a semi-autonomous program module, a fully-autonomous program module, and a fully-dependent program module.

77. (Once Amended) The apparatus of claim 64, wherein the objective criteria includes a risk that a dispatched agent is subjected to in negotiations.

78. A method of handling a computer task on a remote computer system using an intelligent agent, the method comprising the steps of:

(a) determining a risk for the remote computer system;

(b) based upon the risk for the remote computer system, selecting at least one selected program module from a plurality of program modules having varied degrees of domain knowledge, wherein the plurality of program modules are configured to handle a common computer task in the remote computer system; and

(c) configuring an intelligent agent to execute the at least one selected program module to handle the computer task.

79. The method of claim 78, further comprising the step of matching each of the plurality of program modules with a risk level.

80. The method of claim 79, wherein the matching step includes the step of adaptively matching each program module based upon the actual performance of the plurality of program modules.

APPENDIX B

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: Neural Network

The specification discloses a method of training a neural network node using a general purpose computer. The general purpose computer contains a CPU and a math coprocessor. The computer has a standard operating system and configuration for memory having a number of interconnected memory cells each working together. The method consists of a sequence of functions being carried out in a specific order to achieve the functionality of training this specialized network to perform a wide range of varied functions. The method of training a neural network node contains a number of basic steps. The first is a step of providing an initial set of target points in the model space. After the set of target points is set then an estimate of the probability density function (PDF) on the model space at each node in the model space is generated. After the PDF is generated for each node then a second set of target points in said model space is determined. The second set of target points are individually or combinatorially evaluated using the probability density function PDF.

For optimum training within a system a threshold value must be selected for the desired functionality. The threshold value is determined to be less than PDF(i) , where i is the ith target point for each of the second set of target points. Using this threshold value, a first training set of target points for the model space is computed using the N.N.S.(Neural Network Standard determined by National Institute for Standards and Technology in 1995) where the input value is selected and the output value is the PDF(Input value) where PDF(Input value) less than the threshold value. Using this threshold value, a second training set of target points for the model space is computed using the N.N.S.(Neural Network Standard determined by National Institute for Standards and Technology in 1995) where the input value is selected and the output value is the PDF(Input value) where PDF(Input value) greater than said threshold value. Once the first and second set of training sets are determined to meet the criteria set forth above, these sets now contain the desired characteristics to appropriately train the neural network for the desired functionality.

There are a wide range of functions which may be carried out by the ultimate end user of the neural network. The function will dictate the criteria upon which the network specifications must be established. The process will vary upon the selection of the criteria. The disclosed methodology is the basic framework from which most functionalities may be established from an appropriate training set.

The neural networks to be trained may be either based in a hardware based system which is adapted or it may similarly be based upon a general purpose computer to carry out the desired functionality as a neural network. The training may be done either by a technician, by automated system or by a programed system in the general purpose computer.

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: Neural Network

Claim 1

A computerized method of training a neural network node comprising the steps of:

a. providing an initial set of target points;

b. providing a second set of target points;

c. determining a threshold value that is less than a predetermined value;

d. using the threshold value, providing a first training set of target points;

e. using the threshold value, providing a second training set of target points; and

f. using the first and second sets of training target points to train the neural network.

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: Neural Network

Table for Claim 1

BOX 2	Q.2a. Does disclosed invention have practical application?	YES	GoTo: Q.2b	Note 1
	Q.2b. Is disclosed invention in technological arts?	YES	GoTo: Q.6a	Note 2
BOX 6	Q.6a. Is claimed invention a computer program *per se*?	NO	GoTo: Q.6b	
	Q.6b. Is claimed invention a data structure *per se*?	NO	GoTo: Q.6c	
	Q.6c. Is claimed invention non-functional descriptive material?	NO	GoTo: Q.6d	
	Q.6d. Is claimed invention a natural phenomenon?	NO	GoTo: Q.8	
BOX 8	Q.8. Is claimed invention a series of steps to be performed on a computer?	YES	GoTo: Q.12	
BOX 9	Q.9. Is claimed invention a product for performing a process?		GoTo:	
BOX 10	Q.10. Is claimed invention a specific machine or manufacture?		GoTo:	
BOX 12	Q.12a. Does process have post-computer process activity?	NO	GoTo: Q.12b	Note 3
	Q.12b. Does process have pre-computer process activity?	NO	GoTo: Q.13a	Note 4
BOX 13	Q.13a. Does process manipulate abstract idea w/o limitation to a practical application?	NO	GoTo: Q.13b	Note 5
	Q.13b. Does process solve math problem w/o limitation to a practical application?	NO	GoTo: END	

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: Neural Network

Table Notes for Claim 1

Note 1: Disclosed invention trains a neural network.

Note 2: Disclosed invention uses a computer system to train a neural network.

Note 3: Step f. is not a physical act performed *outside* the computer system. *See* Guidelines, Section IV.B.2(b)(I).

Note 4: Steps a. and b. are mere data-gathering steps for the computer operations of steps c. through e. They do not measure physical objects or activities. *See* Guidelines, Section IV.B.2(d)(ii).

Note 5: Claimed invention is limited to the practical application of training the neural network. The step of training the neural network is a functional step which covers reconfiguration of the neural network to produce a practical effect, *i.e.*, to permit the network to perform a desired set of functions.
THE REMAINDER OF THE EXAMINATION MUST BE COMPLETED.

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: Neural Network

Claim 2

A computerized method of training a neural network node comprising the steps of:

a. providing an initial set of target points;

b. providing a second set of target points;

c. determining a threshold value that is less than a predetermined value;

d. using the threshold value, providing a first set of training target points;

e. using the threshold value, providing a second set of training target points; and

f. using the first and second sets of training target points to develop a set of training sets for training the neural network.

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: Neural Network

Table for Claim 2

BOX 2	Q.2a. Does disclosed invention have practical application?	YES	GoTo: Q.2b	Note 1
	Q.2b. Is disclosed invention in technological arts?	YES	GoTo: Q.6a	Note 2
BOX 6	Q.6a. Is claimed invention a computer program *per se*?	NO	GoTo: Q.6b	
	Q.6b. Is claimed invention a data structure *per se*?	NO	GoTo: Q.6c	
	Q.6c. Is claimed invention non-functional descriptive material?	NO	GoTo: Q.6d	
	Q.6d. Is claimed invention a natural phenomenon?	NO	GoTo: Q.8	
BOX 8	Q.8. Is claimed invention a series of steps to be performed on a computer?	YES	GoTo: Q.12	
BOX 9	Q.9. Is claimed invention a product for performing a process?		GoTo:	
BOX 10	Q.10. Is claimed invention a specific machine or manufacture?		GoTo:	
BOX 12	Q.12a. Does process have post-computer process activity?	NO	GoTo: Q.12b	
	Q.12b. Does process have pre-computer process activity?	NO	GoTo: Q.13a	Note 3
BOX 13	Q.13a. Does process manipulate abstract idea w/o limitation to a practical application?	NO	GoTo: Q.13b	Note 4
	Q.13b. Does process solve math problem w/o limitation to a practical application?	YES	GoTo: END	

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: Neural Network

Table Notes for Claim 2

Note 1: Disclosed invention trains a neural network.

Note 2: Disclosed invention uses a computer system to train a neural network.

Note 3: Steps a. and b. are mere data-gathering steps for the computer operations of steps c. through e. They do not measure physical objects or activities. *See* Guidelines, Section IV.B.2(d)(ii).

Note 4: Claimed invention is not limited to a practical application. Viewed as a whole, the claimed invention is the abstract idea of using a computer system to mathematically develop training sets for training neural networks. The "for training the neural network" clause of step f. (using . . . to develop) is a statement of intended use. Thus, step f. does not train the network--a practical application. *The claim is directed to nothing more than converting one set of numbers to another set of numbers with no practical effect.* *See* Gottschalk v. Benson, 409 U.S. 63, 71-72 (1972). *See also* Guidelines, Section IV.B.2(c) and (d). The claim should be rejected under 35 U.S.C. § 101. THE REMAINDER OF THE EXAMINATION MUST BE COMPLETED.

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: Neural Network

Claim 3

A method of determining the state of a neural network comprising the steps of:

a. providing an initial set of target points;

b. providing a second set of target points;

c. modifying the initial and second set of target points;

d. providing a first training set of target points to the neural network;

e. providing a second training set of target points to the neural network; and

f. using the results of the steps of providing first and second training sets of target points to determine the state of the neural network.

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: Neural Network

Table for Claim 3

BOX 2	Q.2a. Does disclosed invention have practical application?	YES	GoTo: Q.2b	Note 1
	Q.2b. Is disclosed invention in technological arts?	YES	GoTo: Q.6a	Note 2
BOX 6	Q.6a. Is claimed invention a computer program *per se*?	NO	GoTo: Q.6b	
	Q.6b. Is claimed invention a data structure *per se*?	NO	GoTo: Q.6c	
	Q.6c. Is claimed invention non-functional descriptive material?	NO	GoTo: Q.6d	
	Q.6d. Is claimed invention a natural phenomenon?	NO	GoTo: Q.8	
BOX 8	Q.8. Is claimed invention a series of steps to be performed on a computer?	YES	GoTo: Q.12	
BOX 9	Q.9. Is claimed invention a product for performing a process?		GoTo:	
BOX 10	Q.10. Is claimed invention a specific machine or manufacture?		GoTo:	
BOX 12	Q.12a. Does process have post-computer process activity?	NO	GoTo: Q.12b	
	Q.12b. Does process have pre-computer process activity?	NO	GoTo: Q.13a	Note 3
BOX 13	Q.13a. Does process manipulate abstract idea w/o limitation to a practical application?	NO	GoTo: Q.13b	Note 4
	Q.13b. Does process solve math problem w/o limitation to a practical application?	YES	GoTo: END	

EXAMINATION GUIDELINES FOR COMPUTER-RELATED INVENTIONS
Example: Neural Network

Table Notes for Claim 3

Note 1: Disclosed invention trains a neural network.

Note 2: Disclosed invention uses a computer system to train a neural network.

Note 3: Steps a. and b. are mere data-gathering steps for the computer operations of steps c. through e. They do not measure physical objects or activities. *See* Guidelines, Section IV.B.2(d)(ii).

Note 4: Claimed invention is not limited to a practical application. Step e. (determining the state of the neural network) does nothing more than determine the weights assigned to the network nodes at any given moment without providing any desired functionality, *i.e.*, without any practical application. Unless the neural network does something practical, merely "determining" its state is akin to watching a "Rube Goldberg" art work. Reading or recording the direct output of the weights assigned is not a practical application. *See* In re Walter, 618 F.2d 758, 768-70, 205 USPQ 397, 408-10 (CCPA 1980). Rather, the claim must recite the *function* the neural network is trained to perform. The claim should be rejected under 35 U.S.C. § 101.
THE REMAINDER OF THE EXAMINATION MUST BE COMPLETED.